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<div>109      7590      04/29/2010</div> <div>The Dow Chemical Company</div> <div>P.O. BOX 1967</div> <div>Midland, MI 48641</div>				
EXAMINER				
KRUEER, KEVIN R				
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* RONALD J. WEEKS

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Appeal 2009-010872  
Application 10/528,610  
Technology Center 1700

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Decided: April 29, 2010

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Before ROMULO H. DELMENDO, JEFFREY T. SMITH, and  
JEFFREY B. ROBERTSON, *Administrative Patent Judges*.

DELMENDO, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from a final rejection of claims 1, 3-9, 11, 13-20, 22, and 24-28 (Second Revised Appeal Brief filed October 2, 2008, hereinafter “App. Br.,” at 2; Final Office Action mailed August 23, 2007). We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

#### STATEMENT OF THE CASE

Appellant states that the invention relates to “polymer compositions uniquely suited for extrusion coating having minimum ‘neck-in’ and excellent sealing characteristics (for example, low heat seal initiation temperatures) and toughness properties” (Spec. 1, ll. 18-20).

Claim 1 reads as follows:

1. A polymer composition comprising
  - (A) from 60 to 80 weight percent of a mixture of at least one homogeneously branched polyethylene and at least one heterogeneously branched polyethylene wherein the mixture of (A) comprises from 40 to 75 weight percent of the homogeneously branched polyethylene and from 25 to 60 weight percent of the heterogeneously branched polyethylene[and]
  - (B) from 20 to 40 weight percent of at least one low density polyethylene polymer having a melt strength at least twice that of mixture (A).

(App. Br. 8; Claims App’x.)

The Examiner relied upon the following as evidence of unpatentability (Examiner's Answer mailed December 19, 2008, hereinafter "Ans.," 3):<sup>1</sup>

Chum	5,677,383	Oct. 14, 1997
Bamberger	6,384,158 B1	May 7, 2002

The Examiner rejected claims 1, 3-9, 11, 13-20, 22, and 24-28 under 35 U.S.C. § 103(a) as unpatentable over the combined teachings of Chum and Bamberger (Ans. 3-4).

### ISSUE

The Examiner found that Chum describes mixture (A), as recited in claim 1, in the form of a polymer blend comprising 5-95 wt% of at least one homogeneously *branched* ethylene interpolymer having at least one comonomer and 95-5 wt% of at least one second heterogeneously *branched* ethylene interpolymer having at least one second comonomer (Ans. 3). Although Chum teaches that the interpolymers making up the blend are branched (i.e., not "linear" in the traditional sense), the Examiner relies on Chum's unconventional lexicography to assert that these interpolymers are "linear polyethylenes" within the contemplation of Bamberger's discussion of the prior art (Ans. 4).

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<sup>1</sup> The Examiner refers to JP 10168245 and JP 57128729 (Ans. 3, 6). These references, however, have not been included in the statement of rejection as part of the relied-upon evidence. Accordingly, we do not consider these references. *In re Hoch*, 428 F.2d 1341, 1342 n.3 (CCPA 1970) ("Where a reference is relied on to support a rejection, whether or not in a 'minor capacity,' there would appear to be no excuse for not positively including the reference in the statement of rejection.").

Nevertheless, the Examiner acknowledged that Chum does not describe component (B) (i.e., a “low density polyethylene [LDPE] polymer having a melt strength at least twice that of mixture (A)”), as recited in claim 1 (Ans. 4). To account for this difference, the Examiner relied on Bamberger, which is said to teach that it was known to add low levels of a LDPE to a linear polyethylene (LPE) in order to increase its melt strength (Ans. 4). Furthermore, the Examiner found that Bamberger teaches that “LDPE is known in the art to have a melt strength 2-3 times greater than that of LLDPE [linear low density polyethylene]” (Ans. 4). The Examiner then concluded that it would have been obvious to one of ordinary skill in the art to add a LDPE into Chum’s polymer blend to improve its melt strength, thus arriving at Appellant’s claimed subject matter (*id.*).

Appellant concedes that Chum’s blend corresponds to mixture (A) of claim 1 (i.e., a blend of *branched* polyethylenes). Appellant contends, however, that the Examiner failed to demonstrate that a person of ordinary skill in the art would have considered Chum’s blend to be a linear polyethylene that may be improved by adding low amounts of an LDPE in accordance with the prior art discussed in Bamberger (Reply Brief, hereinafter “Reply Br.,” filed February 17, 2009 at 3; App. Br. 6). Appellant further asserts that “there is no teaching in [Bamberger] that the LDPE should be chosen to have at least twice the melt strength of the LLDPE portion [i.e., mixture (A)]. . .” (App. Br. 5-6).

Thus, a dispositive issue is:

Has the Examiner identified a reason that would have prompted a person of ordinary skill in the art to combine Chum with Bamberger in the manner claimed – i.e., add a LDPE to Chum’s polymer blend of

homogeneously branched” and “heterogeneously branched” ethylene interpolymers, wherein the LDPE has a melt strength that is at least twice that of Chum’s polymer blend, as required in independent claims 1, 11, 24, and 25?

#### FINDINGS OF FACT (“FF”)

1. Chum teaches a polymer blend comprising: (A) at least one “homogeneously branched substantially linear ethylene/ $\alpha$ -olefin interpolymers”; and (B) “a heterogeneously branched ethylene polymer” (col. 1, ll. 21-31).
2. Chum indicates to one skilled in the relevant art that Chum is using the term “branched” or “linear” in a non-traditional sense (col. 3, ll. 12-17; col. 6, l. 65 to 7, l. 3).
3. In the “Background of the Invention” section, Bamberger states that “[i]t is common practice in the industry to add low levels of an LDPE to an LPE [i.e., linear polyethylene] to increase melt strength, to increase shear sensitivity, i.e., to increase flow at a given horse power; and to reduce the tendency to melt fracture” (col. 1, ll. 50-55).
4. Bamberger discloses:

At equivalent molecular weights, the melt strength of polymers made with the inventive catalyst is equivalent to the melt strength of LDPE’s (and LD/LL blends), and is typically 2-3 times higher than that of polymers made with conventional Ziegler-Natta titanium-based catalysts or with other metallocene catalysts

capable of producing narrow MWD's [col. 12, ll. 6-12].

## PRINCIPLES OF LAW

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007).

While *KSR* explains that an obviousness “analysis need not seek out precise [prior art] teachings,” it nonetheless did not dispense with the need for evaluating the evidence to determine whether a person having ordinary skill in the art would have had “an apparent reason to combine the known elements in the fashion claimed.” *Id.* at 418.

## ANALYSIS

We agree with Appellant that the Examiner failed to establish a prima facie case of obviousness (App. Br. 4-5).

As pointed out by Appellant (Reply Br. 3), the Examiner has not established that a person of ordinary skill in the art would have regarded Chum’s polymer blend to be a *linear* polyethylene (LPE) of the type that may be improved by adding low amounts of low density polyethylene (LDPE) in accordance with the prior art process discussed in Bamberger’s “Background of the Invention” section. Chum plainly teaches that the blend comprises *branched* ethylene polymers and even states that the term “linear” appearing in Chum’s disclosure is used in a non-traditional sense (FF 1 and

2). The Examiner, however, did not offer any evidence or sufficient technical reasoning establishing that Chum's polymer blend of "branched" polymers is in fact a linear polyethylene of the type contemplated in the prior art process discussed in Bamberger's "Background of the Invention" section (FF 3).

Furthermore, while Bamberger states that a LDPE of a given molecular weight typically has a melt strength 2-3 times that of certain unspecified polymers made with conventional Ziegler-Natta Ti-based catalysts or with metallocene catalysts capable of producing polymers having narrow MWDs (molecular weight distributions) (FF 4), the Examiner has not demonstrated that Chum's *polymer blend* would necessarily have the same melt strength as a polymer made with the unspecified conventional Ziegler-Natta Ti-based or metallocene catalysts (App. Br. 6). Indeed, Bamberger even states that LDPEs have melt strengths equivalent to certain "LD/LL blends" (FF 4).

For these reasons, we cannot uphold the Examiner's rejection.

## CONCLUSION

The Examiner has not articulated a reason based on rational underpinnings that would have prompted a person of ordinary skill in the art to combine the references in the manner claimed.

## DECISION

The Examiner's decision to reject appealed claims 1, 3-9, 11, 13-20, 22, and 24-28 under 35 U.S.C. § 103(a) as unpatentable over Chum and Bamberger is reversed.



Appeal 2009-010872  
Application 10/528,610

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

REVERSED

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THE DOW CHEMICAL COMPANY  
P.O. BOX 1967  
MIDLAND, MI 48641